WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:

a programmable image processing unit which processes image data as a visualized image, the image data represented by a digital signal generated based on an image, and allows realization of a plurality of image formation operations;

an image data storage unit that stores the image data;

an image data storage management unit which manages access to said image data storage section; and

an image data transmission management unit which manages transmission of the image data between a data bus transmitting the image data and a processing unit used for the image processing conducted by said image processing unit,

wherein said image processing unit having,

a SIMD (Single Instruction stream Multiple Data stream) type data operation unit;

a plurality of memories used for the image processing conducted by said SIMD type data operation unit;

a memory controller controlling said plurality of memories;

a memory switch controlling connection of said plurality of memories;

a plurality of data buses for inputting and outputting the image data;

a bus switch controlling connection between said

plurality of data buses and said data operation unit; and

at least one auxiliary operation unit which assists said data operation unit.

2. The image processing apparatus according to claim 1, wherein said memory controller and said memory switch selectively connect any one or more memories out of said plurality of memories to said data operation unit, and thereby change a memory capacity allotted to each image formation operation among the plurality of image formation operations.

3. The image processing apparatus according to claim 1, wherein said memory controller and said memory switch control said plurality of data buses and change an image data transfer width allotted to each image formation operation among the plurality of image formation operations.

4. The image processing apparatus according to claim 1, wherein a plurality of said auxiliary operation units are provided and at least one of said auxiliary operation units has a non-SIMD type constitution for executing a consecutive operation processing.

5. An image processing apparatus comprising:

a programmable image processing means for processing image data as a visualized image, the image data represented by a digital signal generated based on an image, and allows realization of a plurality of image formation operations;

an image data storage means for storing the image data;

an image data storage management means for managing access to said image data storage section; and

an image data transmission management means for managing transmission of the image data between a data bus transmitting the image data and a processing means used for the image processing conducted by said image processing means,

wherein said image processing means having,

a SIMD (Single Instruction stream Multiple Data stream) type data operation means;

a plurality of memories used for the image processing conducted by said SIMD type data operation means;

a memory controller controlling said plurality of memories;

a memory switch controlling connection of said plurality of memories;

a plurality of data buses for inputting and outputting the image data;

a bus switch controlling connection between said

plurality of data buses and said data operation means; and at least one auxiliary operation means which assists said data operation means.

6. The image processing apparatus according to claim 5, wherein said memory controller and said memory switch selectively connect any one or more memories out of said plurality of memories to said data operation means, and thereby change a memory capacity allotted to each image formation operation among the plurality of image formation operations.

7. The image processing apparatus according to claim 5, wherein said memory controller and said memory switch control said plurality of data buses and change an image data transfer width allotted to each image formation operation among the plurality of image formation operations.

8. The image processing apparatus according to claim 5, wherein a plurality of said auxiliary operation means are provided and at least one of said auxiliary operation means has a non-SIMD type constitution for executing a consecutive operation processing.

9. An image processing method for processing image data represented by a digital signal based on an image to allow outputting the image data as a visualized image on a programmable image processing unit, the programmable image processing unit comprising a SIMD type data operation unit, a plurality of memories used for an image processing conducted by the SIMD type data operation unit, a memory controller controlling the plurality of memories and a memory switch controlling connection of the plurality of memories, and allowing realizing a plurality of image formation operations, the method comprising the step of:

selectively connecting the plurality of memories to said data operation unit by using the memory controller and the memory switch thereby changing a memory capacity allotted to each image formation operation among the plurality of image formation operations.

10. An image processing method for processing image data represented by a digital signal based on an image to allow outputting the image data as a visualized image on a programmable image processing unit, the image processing unit comprising a SIMD type data operation unit, a plurality of memories used for an image processing conducted by the SIMD type data operation unit, a memory controller controlling the plurality of memories, a memory switch

controlling connection of the plurality of memories, a plurality of data buses for inputting and outputting the image data, a bus switch controlling connection between the plurality of data buses and the data operation unit, and an auxiliary operation unit for assisting in the data operation unit, the method comprising the step of:

controlling said plurality of data buses and said plurality of memories by using said memory controller and said bus switch thereby changing an image data transfer width allotted to each image formation operation among the plurality of image formation operations.

11. A computer readable medium for storing instructions, which when executed by a computer, causes the computer to perform an image processing method for processing image data represented by a digital signal based on an image to allow outputting the image data as a visualized image on a programmable image processing unit, the programmable image processing unit comprising a SIMD type data operation unit, a plurality of memories used for an image processing conducted by the SIMD type data operation unit, a memory controller controlling the plurality of memories and a memory switch controlling connection of the plurality of memories, and allowing realizing a plurality of image formation operations, the method comprising the step of:

selectively connecting the plurality of memories to said data operation unit by using the memory controller and the memory switch thereby changing a memory capacity allotted to each image formation operation among the plurality of image formation operations.

12. A computer readable medium for storing instructions, which when executed by a computer, causes the computer to perform an image processing method for processing image data represented by a digital signal based on an image to allow outputting the image data as a visualized image on a programmable image processing unit, the image processing unit comprising a SIMD type data operation unit, a plurality of memories used for an image processing conducted by the SIMD type data operation unit, a memory controller controlling the plurality of memories, a memory switch controlling connection of the plurality of memories, a plurality of data buses for inputting and outputting the image data, a bus switch controlling connection between the plurality of data buses and the data operation unit, and an auxiliary operation unit for assisting in the data operation unit, the method comprising the step of:

controlling said plurality of data buses and said plurality of memories by using said memory controller and said bus switch thereby changing an image data transfer width

allotted to each image formation operation among the plurality of image formation operations.